

1 **ABSTRACT OF THE DISCLOSURE**

2 An apparatus for precise distance measurement has a multiple
3 frequency generator, a laser transmitter, an optical receiver, a first measuring
4 unit, a second measuring unit and a central processing unit. The laser
5 transmitter outputs a light signal to a target, and the optical receiver receives
6 the reflected light signal and mixes the base frequency signal from the multiple
7 frequency generator and the reflected light signal and further outputs an
8 measurement signal to the first and second measuring units. The first and
9 second measuring units calculate respectively a time difference and a phase
10 difference between the light signal and the reflected light signal. The central
11 processing unit is connected to the first and second measuring units to calculate
12 a precise distance by the time and the phase difference.